

G O D W I N G R U B E R

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Re: Patent Application for:  
"Method for Annealing Ultra-thin, High Quality Gate Oxide Layers  
Using Oxidizer/Hydrogen Mixtures"  
Serial No.: 09/885,744  
Attorney Docket: TI-32705  
Our File: 50000.2188

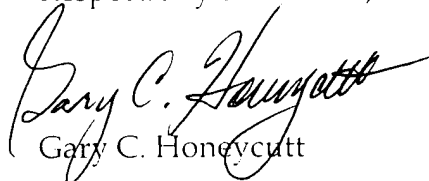
Dear Sir:

Enclosed for filing please find the following items relating to the above-identified application:

- (1) Amendment Pursuant to 37 CFR § 1.115;
- (2) Replacement Pages; and
- (3) Postcards.

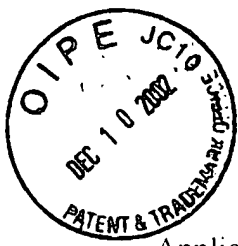
Please return the date-stamped postcards to the corresponding addresses as indicated. In the meantime, if you have any questions or comments concerning this matter, please call the undersigned. Otherwise, please accept the enclosed.

Respectfully submitted,

  
Gary C. Honeycutt

GCH:glc  
Enclosures

cc: W. James Brady, III (Texas Instruments Incorporated, w/ encls.)



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Niimi et al.

Examiner: Khiem D. Nguyen

Serial No.: 09/885,744

Docket: TI-32705

Filed: 06/20/01

For: **METHOD FOR ANNEALING ULTRA-THIN, HIGH QUALITY GATE  
OXIDE LAYERS USING OXIDIZER/HYDROGEN MIXTURES**

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AMENDMENT PURSUANT TO 37 CFR 1.115

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20231.

Ginger Cox

*Ginger Cox*

Sir:

Responsive to the Office Action of September 11, 2002, please amend the application as follows.

IN THE CLAIMS

In Claim 1, lines 11-12, delete "an oxidizer and hydrogen" and insert -- a -- lines 13-14, delete "at minimum oxidation rate"; line 13, after "damage," insert a comma -- , --.

REMARKS

Favorable reconsideration and allowance of the application are respectfully requested, in view of the above amendments and the following comments.

The rejection of claims 1-13 as unpatentable over Kraft et al. in view of Weimer et al., Park, and Park et al. is respectfully traversed because the references fail to disclose or suggest Applicants'

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invention, as defined by the claims. Note first of all that Kraft et al. does not disclose or suggest uniform nitrogen distribution throughout the oxygen layer, contrary to the Examiner's characterization of the reference. Instead, Kraft et al. clearly shows in Figures 5-8 that the distribution of nitrogen is not uniform. Moreover, there is no hint anywhere in the reference that uniform distribution would be desirable.

Weimer et al. is also clearly misconstrued or misinterpreted in the Office Action. The reference does not show any annealing or reoxidation of an oxide layer. Instead, the reference shows reoxidation of source-drain regions 108 A and 108 B.

Moreover, the Weimer process has nothing to do with the addition of nitrogen to an oxide layer, and is therefore unrelated to the Kraft et al. process. Therefore, no logical basis exists for adding the Weimer reoxidation step to Kraft et al.

Still further, it is improper to speculate upon any inherent result that could follow from adding Weimer to Kraft, since there is no rational basis for the Examiner's proposed combination. The law does not condone rejections based upon inherent results, when the references include no suggestion of Applicants' inventive concept or purpose, and no suggestion of Applicants' results.

Still further, the Weimer reoxidation step does not include the use of  $N_2O$  plus  $H_2$ , nor any equivalent mixture, as required by Applicants' claims. Therefore, even if there were a basis for adding Weimer to Kraft, the combination would not (even inherently) meet the terms of Applicants' claims; and would not achieve Applicants' results (even inherently).

The addition of Park to show ultra-thin oxides is moot, since both Kraft and Weimer are clearly mischaracterized by the Examiner; and improperly combined.

The addition of Park et al. to show a capacitor is also moot, in view of the many flaws in the rationale for combining Kraft and Weimer.

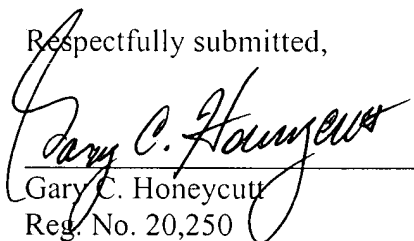
The Examiner's further rejection of claims 5-6 as mere optimization of the Weimer reoxidation is totally improper. The issue of optimization cannot arise when Applicants' purpose

for reoxidation is totally missing from the cited art. Still further, Applicants' mixture of N<sub>2</sub>O and H<sub>2</sub> is not suggested in the art, so "optimization" is not an issue. One skilled in the art cannot "optimize" a process that does not exist in the prior art!

For all the above reasons, the rejection is improper and should be withdrawn.

Applicants now believe the application is in condition for allowance.

Respectfully submitted,

  
\_\_\_\_\_  
Gary C. Honeycutt  
Reg. No. 20,250

Dated: December 10, 2002

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